

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

Safety Data Sheet dated 18/05/2023, version 3

---

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Mixture identification:

Trade name: Zero 500D with Formalin 8% w/v (20% v/v)

Trade code: 50001

UFI: 8300-F04P-4007-A6N1

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use:

Reagent for laboratory and process control.

PROFESSIONAL USE.

Uses advised against:

Do not use for purposes other than those listed.

#### 1.3. Details of the supplier of the safety data sheet

Company:

Meccanica GM s.r.l.

Via Barca -60025 LORETO (AN) ITALY

Tel. +39 071 970727 Fax. +39 071 976604

[www.prodottozero.it](http://www.prodottozero.it)

E-Mail: [info@meccanicagm.com](mailto:info@meccanicagm.com)

Competent person responsible for the safety data sheet:

[m.clementi@meccanicagm.com](mailto:m.clementi@meccanicagm.com)

#### 1.4. Emergency telephone number

Poison centers (h24):

Ospedale Niguarda Ca' Granda di Milano Tel. +39 02 66101029.

Ospedale Pediatrico Bambino Gesù di Roma Tel. +39 06 68593726

Az. Osp. Univ. Di Foggia Tel. +39 800183459

Az. Osp. A. Cardarelli di Napoli Tel. +39 081-5453333

Policlinico Umberto I di Roma Tel. +39 06 49978000

Policlinico A. Gemelli di Roma Tel. +39 06 3054343

Az. Osp. Careggi U.O. Tossicologia Medica di Firenze Tel. +39 055 7947819

Centro Nazionale di Informazione Tossicologica di Pavia Tel. +39 0382 24444

Azienda Ospedaliera Papa Giovanni XXII di Bergamo Tel. +39 800883300

Azienda Ospedaliera Integrata Verona Tel. +39 800011858

Poison centres of Europe Member States: <https://poisoncentres.echa.europa.eu/appointed-bodies>

Poison centres of WHO Member States: [http://www.who.int/gho/phe/chemical\\_safety/poisons\\_centres/en/](http://www.who.int/gho/phe/chemical_safety/poisons_centres/en/)

---

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP)

Acute Tox. 4, H302 Harmful if swallowed.

Skin Irrit. 2, H315 Causes skin irritation.

Eye Irrit. 2, H319 Causes serious eye irritation.

Skin Sens. 1, H317 May cause an allergic skin reaction.

Muta. 2, H341 Suspected of causing genetic defects.

Carc. 1B, H350 May cause cancer.

STOT SE 3, H335 May cause respiratory irritation.

Adverse physicochemical, human health and environmental effects:

No other hazards

#### 2.2. Label elements

Hazard pictograms:

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)



Danger

Hazard statements:

- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H317 May cause an allergic skin reaction.
- H341 Suspected of causing genetic defects.
- H350 May cause cancer.
- H335 May cause respiratory irritation.

Precautionary statements:

- P201 Obtain special instructions before use.
- P261 Avoid breathing fume/mist/vapours.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 IF ON SKIN: Wash with plenty of water and soap.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Special Provisions:

None

Contains

FORMALDEHYDE 8%  
METHYL ALCOHOL

Special provisions according to Annex XVII of REACH and subsequent amendments:

Restricted to professional users.

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration  $\geq 0.1\%$

Other Hazards:

No other hazards

### SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable






3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Number	Classification
7 - 9 %	formaldehyde ...%	Index number: 605-001-00-5 CAS: 50-00-0 EC: 200-001-8 REACH No.: 01-2119488953-20	3.5/2 Muta. 2 H341 3.6/1B Carc. 1B H350 3.2/1B Skin Corr. 1B H314 3.4.2/1-1A-1B Skin Sens. 1,1A,1B H317 3.1/3/Oral Acute Tox. 3 H301 3.1/3/Dermal Acute Tox. 3 H311 3.1/3/Inhal Acute Tox. 3 H331 Specific Concentration Limits: C $\geq 0,2\%$ : Skin Sens. 1,1A,1B H317 5% $\leq$ C < 25%: Skin Irrit. 2 H315 5% $\leq$ C < 25%: Eye Irrit. 2 H319 C $\geq 5\%$ : STOT SE 3 H335 C $\geq 25\%$ : Skin Corr. 1B H314

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

			Acute Toxicity Estimate: ATE - Oral 100 mg/kg bw ATE - Dermal 300 mg/kg bw ATE - Inhalation (Vapours) 3 mg/l
0 - 0.5 %	methanol	Index number: 603-001-00-X CAS: 67-56-1 EC: 200-659-6 REACH No.: 01-2119433307-44	 2.6/2 Flam. Liq. 2 H225  3.8/1 STOT SE 1 H370  3.1/3/Oral Acute Tox. 3 H301  3.1/3/Dermal Acute Tox. 3 H311  3.1/3/Inhal Acute Tox. 3 H331 Specific Concentration Limits: C >= 10%: STOT SE 1 H370 3% <= C < 10%: STOT SE 2 H371 Acute Toxicity Estimate: ATE - Oral 100 mg/kg bw ATE - Dermal 300 mg/kg bw ATE - Inhalation (Vapours) 3 mg/l

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

##### In case of skin contact:

Remove contaminated clothing immediately and dispose off safely.

Wash the contaminated parts for a long time with running water, then with a 2% ammonium hydrate solution. Apply sterile gauze to the affected skin and consult a dermatologist.

##### In case of eyes contact:

In case of contact with eyes, remove any contact lenses. Immediately rinse the affected eyes with plenty of running water for at least 30 minutes, keeping the eyelids open. Seek medical advice.

##### In case of Ingestion:

Rinse your mouth immediately and several times with water; remove any dentures. Transport the injured person to fresh air and keep him at rest in a position that is comfortable for breathing. If ingestion has occurred and if the exposed person is conscious, give plenty of water or milk to drink and induce vomiting keeping the head down so that the vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position, and seek immediate medical attention.

##### In case of Inhalation:

Remove the injured person from the polluted area and keep him in a well-ventilated area. In case of irregular breathing or respiratory arrest, give artificial respiration or have oxygen administered by trained personnel.

Performing mouth-to-mouth resuscitation can be dangerous for the person providing help. If the victim is unconscious, place in recovery position and seek medical assistance immediately.

#### 4.2. Most important symptoms and effects, both acute and delayed

##### FORMALDEHYDE

Eye: irritation, redness of the conjunctiva.

Skin: irritation, reddening of the skin.

Ingestion: ingestion of concentrated solutions of formaldehyde can cause burns and ulcerations of the gastrointestinal tract. Common features are burning sensation in the mouth and throat, abdominal pain in the chest, nausea, vomiting, diarrhea and gastrointestinal bleeding.

Inhalation: inhalation of formaldehyde can cause irritation of the mucous membranes and respiratory tract. In severe cases, pulmonary and larynx edema may occur.

##### METHANOL

Dose-dependent acute effects

Skin: irritation, delipidization.

Nervous System: if swallowed or inhaled at high doses depression, headache, intoxication, dizziness, coma.

Eyes: irritation, if ingested, even serious changes.

First airways: irritation.

Lungs: irritation.

Digestive system: if ingested abdominal colic, vomiting.

Urogenital system: renal damage.

Chronic effects

Skin: irritation, scaling.

Nervous System: headache, insomnia, vertigo.

Eyes: irritation, ocular sequelae (even serious campimetric alterations).

#### 4.3. Indication of any immediate medical attention and special treatment needed

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

Gastric lavage: administer 100 ml of a solution containing 2% ammonium carbonate and 20% urea. Gastric lavage gives positive results only if performed within the first 15 minutes of ingestion.

Take prophylaxis against pulmonary edema.

---

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media:

Water spray (fog), dry chemical product, carbon dioxide (CO<sub>2</sub>), alcohol resistant foam.

Extinguishing media which must not be used for safety reasons:

Water jets. Water is not effective in extinguishing fire, however it can be used to cool closed containers exposed to flames, preventing bursts and explosions.

#### 5.2. Special hazards arising from the substance or mixture

The product is not classified as flammable, however, in the event of thermal decomposition due to high temperatures, substances potentially harmful to human health can develop, mainly carbon oxides and carbon dioxide.

METHYL ALCOHOL

If possible, remove the containers of the substance from the fire site or cool down, because if exposed to thermal radiation or if directly involved it can give rise to toxic fumes. Vapors can cause dizziness, fainting or suffocation. Fire fighting operations must take into account the risk of explosion; therefore, fire fighting personnel must act in a protected position. Containers may explode if exposed to fire.

FORMALDEHYDE

If possible, remove the containers of the substance from the fire site or cool down, because if exposed to thermal radiation or if directly involved it can give rise to toxic fumes. If possible, remove the containers of the substance from the fire site or cool, as it can cause polymerization if heated.

#### 5.3. Advice for firefighters

GENERAL INFORMATION

Cool the containers with water jets to avoid decomposition of the product and the development of substances potentially hazardous for health. Always wear the complete fire protection equipment. Collect extinguishing water that must not be discharged into drains. Dispose of contaminated water used for extinction and the remains of the fire according to the regulations in force.

EQUIPMENT

Normal fire fighting clothing, such as an open circuit compressed air breathing apparatus (EN 137), fireproof suit (EN469), flame retardant gloves (EN 659) and firefighter boots (HO A29 or A30).

---

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Provide adequate ventilation.

Use appropriate respiratory protection.

See protective measures under point 7 and 8.

#### 6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Suitable material for taking up: absorbing material, organic, sand

#### 6.3. Methods and material for containment and cleaning up

For cleaning up:

Vacuum the leaked product into a suitable container. Evaluate the compatibility of the container to be used with the product, checking section 10. Absorb the remainder with inert absorbent material.

Ensure adequate ventilation of the area affected by the loss. Check the incompatibility for the material of the containers in section 7. The disposal of the contaminated material must be carried out in accordance with the provisions of section 13.

#### 6.4. Reference to other sections

See also section 8 and 13

---

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Avoid dispersion of the product in the environment.

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

Wash hands after use.

Advice on general occupational hygiene:

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep only in the original container. Store closed containers in a well-ventilated area away from direct sunlight. Keep containers away from incompatible materials, checking section 10.

Always keep in a well ventilated place.

Keep away from food, drink and feed.

Incompatible materials:

See section 10.

Instructions as regards storage premises:

Cool and adequately ventilated.

### 7.3. Specific end use(s)

See section 1.2.

---

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

formaldehyde ...% - CAS: 50-00-0

- OEL Type: WEL - TWA: 2.5 mg/m<sup>3</sup>, 2 ppm - STEL: 2.5 mg/m<sup>3</sup>, 2 ppm - Notes: United Kingdom

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL: Ceiling 0.74 mg/m<sup>3</sup>, Ceiling 0.6 ppm - Notes: Austria

- OEL Type: TLV - STEL(15 min): 0.38 mg/m<sup>3</sup>, 0.3 ppm - Notes: Belgium

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL: Ceiling 0.4 mg/m<sup>3</sup>, Ceiling 0.3 ppm - Notes: Denmark (skin)

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.74 mg/m<sup>3</sup>, 0.6 ppm - Notes: Finland

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.74 mg/m<sup>3</sup>, 0.6 ppm - Notes: France

- OEL Type: AGS - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.74 mg/m<sup>3</sup>, 0.6 ppm - Notes: Germany

- OEL Type: TLV - TWA: 0.6 mg/m<sup>3</sup> - STEL(15 min): 0.6 mg/m<sup>3</sup> - Notes: Hungary (skin)

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.738 mg/m<sup>3</sup>, 0.6 ppm - Notes: Ireland

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.74 mg/m<sup>3</sup>, 0.6 ppm - Notes: Italy (Limit value of 0,62 mg/m<sup>3</sup> or 0,5 ppm for the health care, funeral and embalming sectors until 11 July 2024)

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.74 mg/m<sup>3</sup>, 0.6 ppm - Notes: Spain

- OEL Type: TLV - TWA: 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.74 mg/m<sup>3</sup>, 0.6 ppm - Notes: Sweden

- OEL Type: TLV - TWA: 0.15 mg/m<sup>3</sup> - STEL(15 min): 0.5 mg/m<sup>3</sup> - Notes: Netherlands

- OEL Type: TLV - TWA: 0.016 ppm - STEL(15 min): Ceiling 0.1 ppm - Notes: USA NIOSH

- OEL Type: TLV - TWA: 0.75 ppm - STEL(15 min): 2 ppm - Notes: USA OSHA

- OEL Type: EU - TWA(8h): 0.37 mg/m<sup>3</sup>, 0.3 ppm - STEL(15 min): 0.74 mg/m<sup>3</sup>, 0.6 ppm - Notes: Limit value of 0,62 mg/m<sup>3</sup> or 0,5 ppm for the health care, funeral and embalming sectors until 11 July 2024

- OEL Type: ACGIH - TWA(8h): 0.12 mg/m<sup>3</sup>, 0.1 ppm - STEL: 0.37 mg/m<sup>3</sup>, 0.3 ppm

methanol - CAS: 67-56-1

- OEL Type: TLV - TWA(8h): 260 mg/m<sup>3</sup>, 200 ppm - Notes: Italy (skin)

- OEL Type: EU - TWA(8h): 260 mg/m<sup>3</sup>, 200 ppm

- OEL Type: ACGIH - TWA(8h): 200 ppm - STEL: 250 ppm

- OEL Type: TLV - TWA: 266 mg/m<sup>3</sup>, 200 ppm - STEL: 333 mg/m<sup>3</sup>, 250 ppm - Notes: United Kingdom (skin)

- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - STEL: 1300 mg/m<sup>3</sup>, 1000 ppm - Notes: France

- OEL Type: TLV - TWA: 266 mg/m<sup>3</sup>, 200 ppm - Notes: Spain

- OEL Type: TLV - TWA: 270 mg/m<sup>3</sup>, 200 ppm - STEL: Ceiling 1080 mg/m<sup>3</sup>, Ceiling 800 ppm - Notes: Germany (skin)

- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - STEL: 250 ppm - Notes: Portugal

- OEL Type: TLV - TWA: 133 mg/m<sup>3</sup>, 100 ppm - Notes: Netherlands

- OEL Type: TLV - TWA: 270 mg/m<sup>3</sup>, 200 ppm - STEL: 330 mg/m<sup>3</sup>, 250 ppm - Notes: Finland (skin)

- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - Notes: Denmark (skin)

- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - STEL: 1040 mg/m<sup>3</sup>, 800 ppm - Notes: Austria (skin)

- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - STEL: 1040 mg/m<sup>3</sup>, 800 ppm - Notes: Switzerland (skin)

- OEL Type: TLV - TWA: 100 mg/m<sup>3</sup> - STEL: 300 mg/m<sup>3</sup> - Notes: Poland

- OEL Type: TLV - TWA: 130 mg/m<sup>3</sup>, 100 ppm - STEL: 162.5 mg/m<sup>3</sup>, 125 ppm - Notes: Norway (skin)

- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - STEL: 780 mg/m<sup>3</sup>, 600 ppm - Notes: Ireland (skin)

- OEL Type: TLV - TWA: 266 mg/m<sup>3</sup>, 200 ppm - STEL: 333 mg/m<sup>3</sup>, 250 ppm - Notes: Belgium (skin)

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - STEL: 325 mg/m<sup>3</sup>, 250 ppm - Notes: Greece (skin)
- OEL Type: TLV - TWA: 250 mg/m<sup>3</sup>, 200 ppm - STEL: 350 mg/m<sup>3</sup>, 250 ppm - Notes: Sweden (skin)
- OEL Type: TLV - TWA: 250 mg/m<sup>3</sup> - STEL: Ceiling 1000 mg/m<sup>3</sup> - Notes: Czech Republic (skin)
- OEL Type: TLV - TWA: 260 mg/m<sup>3</sup>, 200 ppm - Notes: Turkey (skin)

### DNEL Exposure Limit Values

formaldehyde ...% - CAS: 50-00-0

Worker Industry: 1 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, local effects

Worker Industry: 0.5 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, local effects

Worker Industry: 9 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Worker Industry: 0.037 mg/kg - Exposure: Human Dermal - Frequency: Long Term, local effects

Worker Industry: 240 mg/kg bw/d - Exposure: Human Dermal - Frequency: Long Term, systemic effects

methanol - CAS: 67-56-1

Worker Industry: 260 mg/m<sup>3</sup> - Consumer: 50 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Worker Industry: 260 mg/m<sup>3</sup> - Consumer: 50 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, systemic effects

Worker Industry: 260 mg/m<sup>3</sup> - Consumer: 50 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Long Term, local effects

Worker Industry: 260 mg/m<sup>3</sup> - Consumer: 50 mg/m<sup>3</sup> - Exposure: Human Inhalation - Frequency: Short Term, local effects

Worker Industry: 40 mg/kg bw/d - Consumer: 8 mg/kg bw/d - Exposure: Human Dermal - Frequency: Long Term, systemic effects

Worker Industry: 40 mg/kg bw/d - Consumer: 8 mg/kg bw/d - Exposure: Human Dermal - Frequency: Short Term, systemic effects

Consumer: 8 mg/kg bw/d - Exposure: Human Oral - Frequency: Long Term, systemic effects

Consumer: 8 mg/kg bw/d - Exposure: Human Oral - Frequency: Short Term, systemic effects

### PNEC Exposure Limit Values

formaldehyde ...% - CAS: 50-00-0

Target: Fresh Water - Value: 0.47 mg/l

Target: Marine water - Value: 0.47 mg/l

Target: Freshwater sediments - Value: 2.44 mg/kg

Target: Marine water sediments - Value: 2.44 mg/kg

Target: Periodic release - Value: 4.7 mg/l

Target: Microorganisms in sewage treatments - Value: 0.19 mg/l

Target: Soil - Value: 0.21 mg/kg

methanol - CAS: 67-56-1

Target: Fresh Water - Value: 20.8 mg/l

Target: Marine water - Value: 2.08 mg/l

Target: Freshwater sediments - Value: 77 mg/kg

Target: Soil - Value: 100 mg/kg

Target: Marine water sediments - Value: 7.7 mg/kg

Target: Microorganisms in sewage treatments - Value: 100 mg/l

### Biological Exposure Index

methanol - CAS: 67-56-1

Value: 15 mg/L - Biological Indicator: Methyl alcohol in urine - Sampling Period: End of turn

### 8.2. Exposure controls

#### Eye protection:

Wear glasses with side shields (EN 166). If there is a risk of exposure to product splashes, wear a hood visor or protective visor combined with airtight goggles.

#### Protection for skin:

Wear work clothes with long sleeves and safety footwear for professional use in category II (refer to standard EN 344). After removing protective clothing, wash affected skin with water and soap.

#### Protection for hands:

Protect your hands with gloves, category III (EN 374). For the definitive selection of the material used for the gloves, the following factors should be considered: degradation, breakage time and permeation. In the case of preparations, glove resistance should be tested before use because it is not foreseeable. The gloves have a durability that depends on the duration of exposure.

Suitable material:

NR (natural rubber, natural latex).

NBR (nitrile rubber).

#### Respiratory protection:

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

If you exceed the threshold value (e.g. TLV-TWA) of one or more of the substances in the preparation, wear filter for gas/vapours of organic compounds, type EN 14387 type A. The use of respiratory protective equipment is necessary in the absence of technical measures to limit worker exposure. Nonetheless, the masks provide limited protection.

In the case where the substance in question is odourless or its olfactory threshold is higher than the relative exposure limit and in case of emergency, wear an open circuit compressed-air self-respirator (Standard EN 137) or an external air-uptake respirator to be used with full face mask, half face mask or mouthpiece (ref. Standard EN 138).

Thermal Hazards:

None

Environmental exposure controls:

See section 7 and 13.

Emissions from production processes, including those from ventilation should be checked to fulfill the requirements of the environmental legislation.

Appropriate engineering controls:

Ensure adequate ventilation of the premises.

### SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes
Physical state:	Liquid	--	--
Colour:	Colourless	--	--
Odour:	pungent	--	--
Melting point/freezing point:	Not Relevant	--	30.19 % formaldeide and 1% methanol (water solution) = -18,8°C
Boiling point or initial boiling point and boiling range:	100°C	--	--
Flammability:	Not applicable	--	--
Lower and upper explosion limit:	Not Relevant	--	--
Flash point:	Not Relevant	--	--
Auto-ignition temperature:	Not Relevant	--	--
Decomposition temperature:	Not Relevant	--	--
pH:	Not applicable	--	--
Kinematic viscosity:	Not applicable	--	--
Solubility in water:	partially soluble	--	--
Solubility in oil:	Not Relevant	--	--
Partition coefficient n-octanol/water (log value):	Not Relevant	--	--
Vapour pressure:	Not Relevant	--	Formaldehyde 55% water solution = 14 hPa at 20 °C
Density and/or relative density:	non disponibile	--	--
Relative vapour density:	Not Relevant	--	--

Particle characteristics:

Particle size:	Not applicable	--	--
----------------	----------------	----	----

9.2. Other information

Properties	Value	Method:	Notes
Explosive properties:	non explosive	--	absence of chemical groups associated with explosive properties in accordance with the provisions of Annex I, Part 2, chap. 2.1.4.3 of reg. (CE) 1272/2008 - CLP
Oxidizing properties:	non oxidizing	--	absence of the requirements related to the presence of atoms and/or chemical bonds associated with oxidizing properties in the molecules of the components pursuant to the provisions of Annex I, Part 2, 2.13.4 of reg. (CE) 1272/2008 - CLP

### SECTION 10: Stability and reactivity

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

### 10.1. Reactivity

METHYL ALCOHOL: Vapors form explosive mixtures with air.

FORMALDEHYDE

Aqueous solutions are stabilized with methanol, but tend to polymerize over time. The storage temperature varies according to the concentration. The solutions > 25% are also corrosive. Decomposes due to heat.

### 10.2. Chemical stability

METHANOL: In combustion it develops formaldehyde.

### 10.3. Possibility of hazardous reactions

METHANOL: Polymerizes only if heated.

FORMALDEHYDE: Risk of explosion on contact with: nitromethane, nitrogen dioxide (at 180 ° C), hydrogen peroxide, phenol, performic acid, nitric acid. It may polymerize on contact with: strong oxidizing agents, alkalis. It may react dangerously with: hydrochloric acid, magnesium carbonate, sodium hydroxide, perchloric acid and aniline. It forms explosive mixtures with air.

### 10.4. Conditions to avoid

Avoid overheating, electrostatic discharge and all sources of ignition.

Protect from light.

FORMALDEHYDE: Do not tamper with the containers in any way or expose them to heat or sources of ignition. Avoid accumulation of vapors in low or confined areas. Avoid contact with ammonia, alkalis, tannins, copper salts, iron, silver, hydrogen peroxide, potassium permanganate.

### 10.5. Incompatible materials

FORMALDEHYDE: avoid contact with carbon steel, strong alkalis (e.g. sodium hydroxide), acids, ammonia and oxidizing substances.

### 10.6. Hazardous decomposition products

In case of fire or decomposition may spread gas and vapors potentially harmful for health as CO<sub>2</sub>, carbon monoxide and other irritating fumes.

---

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological information of the product:

#### a) acute toxicity

The product is classified: Acute Tox. 4 H302

ATEmix - Oral 1176,47 mg/kg bw

#### b) skin corrosion/irritation

The product is classified: Skin Irrit. 2 H315

#### c) serious eye damage/irritation

The product is classified: Eye Irrit. 2 H319

#### d) respiratory or skin sensitisation

The product is classified: Skin Sens. 1 H317

#### e) germ cell mutagenicity

The product is classified: Muta. 2 H341

#### f) carcinogenicity

The product is classified: Carc. 1B H350

#### g) reproductive toxicity

Not classified

Based on available data, the classification criteria are not met

#### h) STOT-single exposure

The product is classified: STOT SE 3 H335

#### i) STOT-repeated exposure

Not classified

Based on available data, the classification criteria are not met

#### j) aspiration hazard

Not classified

Based on available data, the classification criteria are not met

Toxicological information of the main substances found in the product:

formaldehyde ...% - CAS: 50-00-0

#### a) acute toxicity

ATE - Oral 100 mg/kg bw

ATE - Dermal 300 mg/kg bw

ATE - Inhalation (Vapours) 3 mg/l

Test: LD50 - Route: Oral - Species: Rat = 460 mg/kg - Notes: Formaldehyde in solution at 2 ÷ 4%



# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

Test: LC50 - Route: Inhalation Vapour - Species: Rat = 588 mg/l - Duration: 4h

Test: LD0 - Species: Man > 60 mg/l - Notes: Formaldehyde in solution at 40%

b) skin corrosion/irritation:

Test: Skin Corrosive Positive - Notes: It can cause irritative to caustic type injuries depending on the concentration. Formaldehyde is irritating to human skin. Experimental studies confirm the irritant action observed in humans. Aqueous solutions of formaldehyde (0.1% to 20%) are irritants for rabbit skin (OECD, 2002).

c) serious eye damage/irritation:

Test: Eye Corrosive Positive - Notes: Ocular corrosive effects are expected for aqueous solutions of formaldehyde at concentrations higher than 5%.

d) respiratory or skin sensitisation:

Test: Skin Sensitization - Species: Rabbit Positive - Notes: The substance has sensitizing power. Many studies on different models (Buehler's mouse test and guinea pig maximization test) indicate that formaldehyde is a skin sensitizer in animals where it induces a moderate to strong response to non-irritating concentrations (INRS, 2011).

Test: Respiratory Sensitization Negative - Notes: Studies conducted on experimental animals have not given evidence of respiratory allergies induced by formaldehyde; moreover, formaldehyde has not been shown to be a relevant allergen for children and adults.

e) germ cell mutagenicity:

Test: In vivo mutation test Positive - Notes: The EU classifies Formaldehyde as Mutagen Cat. 2, H341 in accordance with Reg. 1272/2008 Annex VI.

f) carcinogenicity:

Test: Carcinogenicity Positive - Notes: The EU classifies Formaldehyde as Carcinogenic Cat. 1B, H350 in accordance with Reg. 1272/2008 Annex VI.

g) reproductive toxicity:

Test: Reproductive Toxicity Negative - Notes: Formaldehyde did not demonstrate teratogenic effects in mice. There are no data for humans.

- Adverse developmental effects: Available epidemiological studies indicate an increase in spontaneous abortions and a decrease in birth weight. These results are unequivocal since the role of other risk factors cannot be excluded.

- Effects on breastfeeding or breast-feeding: No data are available on effects on breastfeeding or through breast-feeding.

methanol - CAS: 67-56-1

a) acute toxicity

ATE - Oral 100 mg/kg bw

ATE - Dermal 300 mg/kg bw

ATE - Inhalation (Vapours) 3 mg/l

Test: LD50 - Route: Oral - Species: Rat > 1187 mg/kg

Test: LD50 - Route: Skin - Species: Rabbit = 17100 mg/kg

Test: LC50 - Route: Inhalation - Species: Rat = 128.2 g/m<sup>3</sup> - Duration: 4h

b) skin corrosion/irritation:

Test: Skin Irritant - Route: Skin Negative - Notes: Repeated or prolonged contact with the substance in liquid form can cause skin irritation: dermatosis, erythema and desquamation (INRS, 2009).

c) serious eye damage/irritation:

Test: Eye Irritant - Route: .EYES Negative - Notes: The inhaled substance is irritating. In humans, in liquid form, it can cause conjunctivitis, superficial lesions of the cornea and chemosis (INRS, 2009). The pure product causes redness of the conjunctiva in all animals, moderate and reversible opacity of the cornea in 50% of treated animals. A 25% aqueous solution has no effect (INRS, 2009).

d) respiratory or skin sensitisation:

Test: Skin Sensitization - Species: 24 Negative - Source: OECD, 2004

Test: Respiratory Sensitization Negative

e) germ cell mutagenicity:

Test: Mutagenesis (Ames test) Negative - Notes: No human data are available. Methanol provided negative results in Ames test, with or without metabolic activation. In culture it induced point mutations on mouse lymphoma cells. In vivo increases the frequency of chromosomal aberrations in mice and grasshoppers. In the mouse, the response is dose-dependent and is accompanied by increased frequency of exchanges between sister chromatids and micronuclei in bone marrow cells.

f) carcinogenicity:

Test: Carcinogenicity Negative

g) reproductive toxicity:

Test: Reproductive toxicity - growth Negative - Notes: - Adverse effects on sexual function and fertility: Data not available.

- Adverse effects on development: In pregnant women exposed to 20000 ppm of substance, 7h / day for the whole duration of gestation or even only from the 7th to the 15th day of gestation, the substance caused a

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

slight maternal toxicity and a strong incidence of congenital malformations (over-numerary or rudimentary ribs, malformations of the urinary or cardiovascular system).

- Effects on breastfeeding or breastfeeding: Data not available.

### h) STOT-single exposure:

Notes: The substance has an action on the CNS where it initially causes intoxication, then more or less profound disturbances of consciousness, sometimes accompanied by convulsions, respiratory depression and cardiovascular collapse.

### i) STOT-repeated exposure:

Notes: Epidemiological studies on workers exposed to long-term substance vapors have shown the presence of visual disturbances affecting the optic nerve and the retina, persistent and relapsing headaches. Repeated or prolonged contact with the substance in liquid form can cause skin irritation: dermatosis, erythema and desquamation.

### Toxicological kinetics, metabolism and distribution information:

Notes: The substance can be absorbed by ingestion, inhalation or through skin contact. It is rapidly distributed in the body's total water. The half-life is about 24 hours. Metabolism occurs in the liver. The 1st stage involves the oxidation of methanol to formaldehyde by the hepatic alcohol-dehydrogenase, a non-specific enzyme that also has affinity for ethanol and butanol. The relative affinity of the alcohol dehydrogenase for ethanol and methanol is approximately 20: 1; that is, this stage is limiting because it is linked to a saturation process. In the 2nd stage the formaldehyde is oxidized by the aldehyde dehydrogenase in formic acid or formate, in relation to the pH. The 3rd stage, which leads to the formation of carbon dioxide, is controlled by the metabolic pathway of the compounds at a carbon atom (system under the dependence of a derivative of folic acid); is the limiting step of biotransformation. This explains the accumulation of formates in the body in the event of massive or repeated administration of methanol. The elimination of methanol and its metabolites occurs with the exhaled air (methanol and carbon dioxide) and with the urine (methanol and formates). This process is slow, particularly when compared with ethanol. In primates the metabolic process is about 50% slower than in rodents. The urinary concentration of methanol, well correlated with blood concentration, is a good indicator of the spread of the substance. The existence of a latency phase prior to the appearance of specific toxic effects suggests that these are not due to the substance itself but to its metabolites. The mechanism of ocular toxicity has not yet been elucidated, although it is likely that it is due to the presence of formic acid and not of formaldehyde. The accumulation of formic acid coincides with the metabolic acidosis and with the toxic effects on the central nervous system.

In case of serious poisoning, both by digestive and inhalation routes, the latency time for the onset of symptoms is variable, from 10 to 48 hours, depending also on the ingested dose. There are: - non-specific symptoms such as CNS depression with intoxication syndrome, then more or less profound disorders of the conscience sometimes accompanied by convulsions, respiratory depression and cardio-vascular collapse. Own symptoms of methanol intoxication: marked metabolic acidosis with large and rapid breath of the Kussmaul type. You can arrive at a lower arterial pH at 7, significant reduction of bicarbonates and increase in lactates; - visual disturbances that may occur late, from the 2nd to the 4th day and which are manifestations of retrobulbar optic neuritis. There is bilateral mydriasis with abolition of the photomotor reflex, reduction of visual acuity that can develop into complete blindness and a concentric narrowing of the visual field. There is great variability among individuals for methanol resistance. In the most serious cases, death may occur due to respiratory failure, or, even after severe poisoning, total recovery may occur, but the ocular sequelae are relatively frequent (reductions in the visual field, complete blindness). Epidemiological studies on workers exposed to substance vapors in a prolonged way they showed the presence of visual disturbances concerning the optic nerve and the retina, tenacious and relapsing headaches. Repeated or prolonged contact with the substance in liquid form can cause skin irritation: dermatosis, erythema and desquamation. The substance inhaled has irritating power for the eyes and the respiratory system.

### 11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration  $\geq 0.1\%$

---

## SECTION 12: Ecological information

### 12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Not classified for environmental hazards

Based on available data, the classification criteria are not met

formaldehyde ...% - CAS: 50-00-0

#### a) Aquatic acute toxicity:

Endpoint: EC50 - Species: Daphnia pulex = 5.8 mg/l - Duration h: 48

Endpoint: EC50 - Species: Algae > 3.48 mg/l - Duration h: 72

Endpoint: LC50 - Species: Fish (Morone saxatilis) = 6.7 mg/l - Duration h: 96

Endpoint: LC50 - Species: Fishes (Ameiurus melas) = 70 ppm - Duration h: 96

Notes: Formaldehyde is toxic and can contaminate the environment; use according to good working practices, avoiding dispersing the product on the ground and in watercourses. Formaldehyde is a substance soluble in water in every ratio, therefore if poured on the ground it can contaminate the water tables. Formaldehyde, in aerobic conditions, is easily biodegradable (estimated half-life in 24 ÷ 168 hours); practical

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

experiences have shown that an aqueous solution containing up to 500 mg/litre of formaldehyde can be treated in a normal activated sludge treatment plant without leaving by-products.

### b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Fish (*Oryzias latipes*) > 48 mg/l - Duration h: 672

methanol - CAS: 67-56-1

### a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish (*Lepomis macrochirus*) = 15.4 mg/l - Duration h: 96

Endpoint: EC50 - Species: *Daphnia magna* > 10 mg/l - Duration h: 48

### b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Fish (*Oryzias latipes*) = 7.9 mg/l

## 12.2. Persistence and degradability

formaldehyde ...% - CAS: 50-00-0

Biodegradability: The substance is biodegradable. - Test: BOD - Duration h: 14 days - %: 91

Test: OECD 301C - %: 97 - Notes: MITI-I-Test

Test: OECD 301D - Duration h: 28 days - %: 90 - Notes: Closed-Bottle-Test

methanol - CAS: 67-56-1

Biodegradability: Readily biodegradable

## 12.3. Bioaccumulative potential

formaldehyde ...% - CAS: 50-00-0

Bioconcentration is not significant. - Test: Log Pow 0.35 - Notes: The low measured log Pow value (0.35 at 20°C) indicates the low bioaccumulation potential of formaldehyde. This is confirmed by the results of tests carried out on various species of fish and on a species of shrimp in which no bioaccumulation of formaldehyde was observed.

methanol - CAS: 67-56-1

Bioaccumulation is unlikely. - Test: BCF - Bioconcentration factor 0.2 - Notes: Based on the Kow log, a BCF of 0.2 was estimated. Based on the estimated and reported BCF values, the substance is not expected to bioconcentrate significantly in aquatic organisms.

## 12.4. Mobility in soil

formaldehyde ...% - CAS: 50-00-0

High mobility on the ground is expected. - Test: Koc 37 - Notes: (HSDB, 2014).

It is essentially volatile.

Volatilization from damp soil surfaces (based on Henry's Law) is not expected. Formaldehyde volatilizes from dry soil surfaces.

In water, it does not adsorb to sediments and suspended solids.

methanol - CAS: 67-56-1

Volatilization from water and soil should be significant under normal environmental conditions.

## 12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances: None

## 12.6. Endocrine disrupting properties

No endocrine disruptor substances present in concentration  $\geq$  0.1%

## 12.7. Other adverse effects

None

---

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

---

## SECTION 14: Transport information

### 14.1. UN number or ID number

Not classified as dangerous in the meaning of transport regulations.

### 14.2. UN proper shipping name

Not applicable

### 14.3. Transport hazard class(es)

Not applicable

### 14.4. Packing group

Not applicable

### 14.5. Environmental hazards

ADR-Environmental Pollutant: No

IMDG-Marine pollutant: No

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

- 14.6. Special precautions for user  
Not applicable
- 14.7. Maritime transport in bulk according to IMO instruments  
Not applicable

---

### SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Dir. 98/24/EC (Risks related to chemical agents at work)  
Dir. 2000/39/EC (Occupational exposure limit values)  
Regulation (EC) n. 1907/2006 (REACH)  
Regulation (EC) n. 1272/2008 (CLP)  
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013  
Regulation (EU) n. 2020/878  
Regulation (EU) n. 286/2011 (ATP 2 CLP)  
Regulation (EU) n. 618/2012 (ATP 3 CLP)  
Regulation (EU) n. 487/2013 (ATP 4 CLP)  
Regulation (EU) n. 944/2013 (ATP 5 CLP)  
Regulation (EU) n. 605/2014 (ATP 6 CLP)  
Regulation (EU) n. 2015/1221 (ATP 7 CLP)  
Regulation (EU) n. 2016/918 (ATP 8 CLP)  
Regulation (EU) n. 2016/1179 (ATP 9 CLP)  
Regulation (EU) n. 2017/776 (ATP 10 CLP)  
Regulation (EU) n. 2018/669 (ATP 11 CLP)  
Regulation (EU) n. 2018/1480 (ATP 13 CLP)  
Regulation (EU) n. 2019/521 (ATP 12 CLP)  
Regulation (EU) n. 2020/217 (ATP 14 CLP)  
Regulation (EU) n. 2020/1182 (ATP 15 CLP)  
Regulation (EU) n. 2021/643 (ATP 16 CLP)  
Regulation (EU) n. 2021/849 (ATP 17 CLP)  
Regulation (EU) n. 2022/692 (ATP 18 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

Restriction 3  
Restriction 40

Restrictions related to the substances contained:

Restriction 28  
Restriction 69  
Restriction 72  
Restriction 75

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)  
Regulation (EC) nr 648/2004 (detergents).  
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1  
None

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.  
Substances for which a Chemical Safety Assessment has been carried out:  
formaldehyde ...%  
methanol

---

### SECTION 16: Other information

Full text of phrases referred to in Section 3:

H341 Suspected of causing genetic defects.

# Safety Data Sheet

## Zero 500D with Formalin 8% w/v (20% v/v)

H350 May cause cancer.  
 H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H301 Toxic if swallowed.  
 H311 Toxic in contact with skin.  
 H331 Toxic if inhaled.  
 H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H335 May cause respiratory irritation.  
 H225 Highly flammable liquid and vapour.  
 H370 Causes damage to organs.  
 H371 May cause damage to organs.

Hazard class and hazard category	Code	Description
Flam. Liq. 2	2.6/2	Flammable liquid, Category 2
Acute Tox. 3	3.1/3/Dermal	Acute toxicity (dermal), Category 3
Acute Tox. 3	3.1/3/Inhal	Acute toxicity (inhalation), Category 3
Acute Tox. 3	3.1/3/Oral	Acute toxicity (oral), Category 3
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Skin Corr. 1B	3.2/1B	Skin corrosion, Category 1B
Skin Irrit. 2	3.2/2	Skin irritation, Category 2
Eye Irrit. 2	3.3/2	Eye irritation, Category 2
Skin Sens. 1	3.4.2/1	Skin Sensitisation, Category 1
Skin Sens. 1,1A,1B	3.4.2/1-1A-1B	Skin Sensitisation, Category 1,1A,1B
Muta. 2	3.5/2	Germ cell mutagenicity, Category 2
Carc. 1B	3.6/1B	Carcinogenicity, Category 1B
STOT SE 1	3.8/1	Specific target organ toxicity - single exposure, Category 1
STOT SE 2	3.8/2	Specific target organ toxicity - single exposure, Category 2
STOT SE 3	3.8/3	Specific target organ toxicity - single exposure, Category 3

This safety data sheet has been completely updated in compliance to Regulation 2020/878.  
 Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Acute Tox. 4, H302	Calculation method
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Skin Sens. 1, H317	Calculation method
Muta. 2, H341	Calculation method
Carc. 1B, H350	Calculation method
STOT SE 3, H335	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECHA website: <https://echa.europa.eu/home>

IFA GESTIS website: <https://limitvalue.ifa.dguv.de>

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

## Safety Data Sheet

### Zero 500D with Formalin 8% w/v (20% v/v)

CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.